**B.C.A. DEGREE EXAMINATION, APRIL 2016.**

**I YEAR — I SEMESTER**

**Allied I— ALLIED MATHEMATICS - I**

**Time : 3 hours Max. Marks : 75**

**SECTION A — (10 × 2 = 20 marks)**

**Answer any *TEN* questions.**

1. Prove that  is a tautology.
2. Define conjunction.
3. Show that .
4. If = show that 1’ nearly.
5. Prove that cosh 2 x - sinh 2 x = 1.
6. Prove that cosh 4 = ( cosh4 + 4cosh2 + 3 ).
7. Find L ( 4sin3t ).
8. Find L ( 2e 3t + 3e -3t )
9. Find L – 1 ( )
10. Find L -1 ( )
11. Write the negation of the statement “ Today is Monday”.
12. Find L – 1 ( ).

**SECTION B — (5 × 5 = 25 marks)**

**Answerany *FIVE* the questions.**

1. Find the truth table of ( P Q ) ( P R ).
2. Prove that
3. Prove that sinh ( A + B ) = sinhAcoshB + coshAsinhB.
4. Find L ( cos 2 t ).
5. Find L -1
6. Express in terms of sin .
7. Find *L (tsinat).*

**SECTION C — (3 × 10 = 30 marks)**

**Answer any *THREE* questions.**

1. Show that Q ( P 7Q ) ( 7P 7Q ) is a tautology.
2. Show that - 2 4cos 3 sin 2 = cos5 + cos3 - 2cos.
3. If  then prove that
4. - = 1.

b) + = 1.

1. Find L ( t e –t sin4t ).
2. Find L -1 .

——————